

IN THE CLAIMS:

Please amend the claims as indicated below. No new matter is introduced.

1. (Previously Presented) An optoelectronic sensor for demodulating a modulated  
5 photon flux (50) comprising:

a semiconductor region (10);

at least two collecting zones (20, 22) present in the semiconductor region (10) and  
serving for collecting and tapping off minority carriers (11) generated when said  
modulated photon flux (50) penetrates into the semiconductor region (10), the collecting  
10 zones (20, 22) being doped inversely with respect to the semiconductor region (10);

characterized by at least two control zones (32, 34) introduced in the  
semiconductor region (10) and serving for generating a drift field in a manner dependent  
on a control voltage that can be applied to the control zones (32, 34), the control zones  
(32, 34) being of the same doping type as the semiconductor region (10).

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2. (Original) The optoelectronic sensor as claimed in claim 1, wherein the  
semiconductor region (10) is situated above or in a semiconductor substrate (12), which  
is doped more highly than the semiconductor region (10).

20 3. (Original) The optoelectronic sensor as claimed in claim 1, wherein the  
semiconductor region (10) is applied on a dielectric (12).

4. (Original) The optoelectronic sensor as claimed in claim 1, wherein the control  
zones (32, 34) are at a greater distance from the midpoint of the sensor than the collecting  
25 zones (20, 22).

5. (Original) The optoelectronic sensor as claimed in claim 1, wherein the  
semiconductor region (10) is p-doped.

30 6. (Previously Presented) The optoelectronic sensor as claimed in claim 1, wherein  
the collecting zones (20, 22) are diffused.

7. (Original) The optoelectronic sensor as claimed in claim 1, wherein the collecting zones (20, 22) are produced by local charge transfers in the semiconductor region (10).

8. (Cancelled)

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9. (Cancelled)

10. (Cancelled)

10 11. (Cancelled)

12. (Cancelled)

13. (Previously Presented) A measuring device in particular for 3D distance  
15 measurement, comprising

at least one optoelectronic sensor as claimed in claim 1,

an optical transmitter for generating a modulated photon flux having a  
predetermined phase,

a device (60) for generating a control voltage, the phase of the control voltage  
20 being in a fixed relationship with the phase of the photon flux generated by the  
transmitter, and

an evaluation device (40, 42) assigned to the collecting zones (20, 22) and serving  
for determining the amplitude and the phase of the modulated photon flux with respect to  
the phase of the control voltage.

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14. (New) The optoelectronic sensor as claimed in claim 1, wherein the collecting  
zones (20, 22) are formed as Schottky diodes.

15. (New) The optoelectronic sensor as claimed in claim 1, wherein the  
30 semiconductor region (10), more than one collecting zone pair is embedded between the  
at least two control zones (32, 34) or two capacitive elements (35, 36, 37, 38).